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UNIVERSITY OF TEESSIDE SCHOOL OF HEALTH & SOCIAL CARE
Occasional Paper No. 10
January 2005

Obesity and overweight in Europe and lessons from France and Finland

Introduction

It is now common knowledge that obesity has enormous deleterious consequences for health and the economy. The rise of obesity is widely accepted as a major public health problem in the UK. In this paper we aimed to investigate the scale of the problem in the rest of Europe, and whether any lessons can be learned from the study of other countries. Two case studies, France and Finland, were used, which reflect where current research interests lie.

Facts and figures

Adult prevalence of obesity by nation in the EU ranges from about 10% in France to about 25% in Greece[1].

World Health Organisation (WHO) figures suggest that the prevalence of obesity amongst adults for most European countries is not as high as the UK's. However, obesity still presents a major public health problem, especially as levels are rising at an alarming rate[1].

The proportion of children around 10 years who are overweight ranges from 10% in Slovakia to 36% in Italy[1].

The International Obesity Taskforce (IOTF) estimates overall European prevalence of childhood overweight now to be 24%[2]. This represents an accelerated increase, exceeding the predicted figure for the year 2010 based on trends from the 1980s.

According to IOTF figures, this is well below that of the Americas (with estimated prevalence of around 32%), but is about in line with the UK (estimated prevalence 22%)[2], though the most recent estimates suggest the UK's prevalence is higher than those of most other European countries[3]. There is wide variation in the magnitude of the problem by nation.

Contents

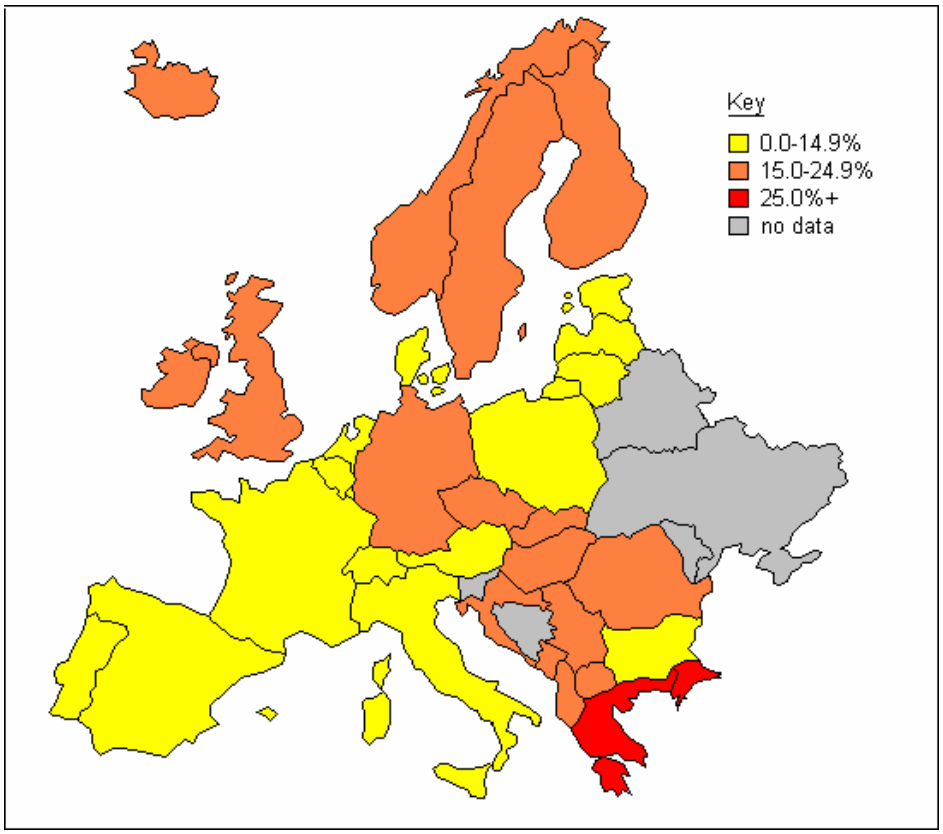
Summary

- While there are some identifiable patterns in obesity prevalence across Europe, these are very complex and caution must be exercised in making comparisons and drawing conclusions.
- The only thing that is certain is that the rise of obesity is very widespread.
- The complex origins of the obesity epidemic make it difficult to learn lessons from other countries.
- We were able to draw some broad conclusions as to how interventions may work best from the study of Finland, but we must be careful about generalising across space, time and cultures.
- Detailed case studies can provide some useful information and the international dissemination of information on obesity trends and interventions and their results has the potential to be a key resource for policy makers in the future.

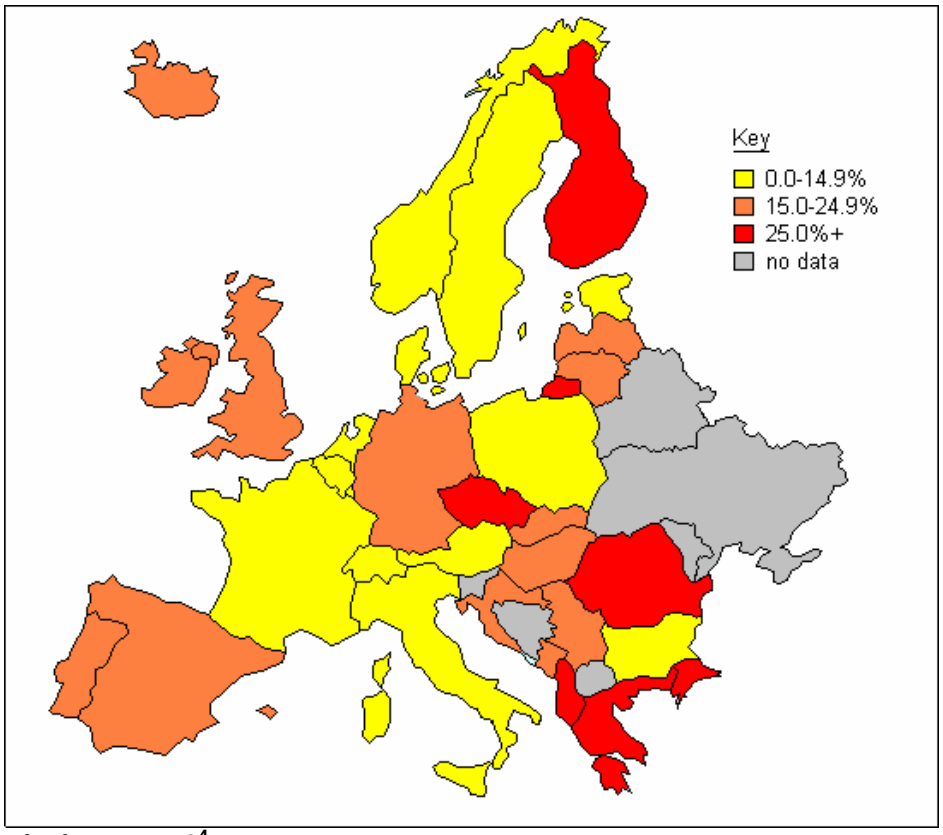
The following figures show the pattern of adult obesity and childhood overweight in Europe.

Figure 1: Prevalence of adult obesity (BMI 30.0+) across Europe

Men

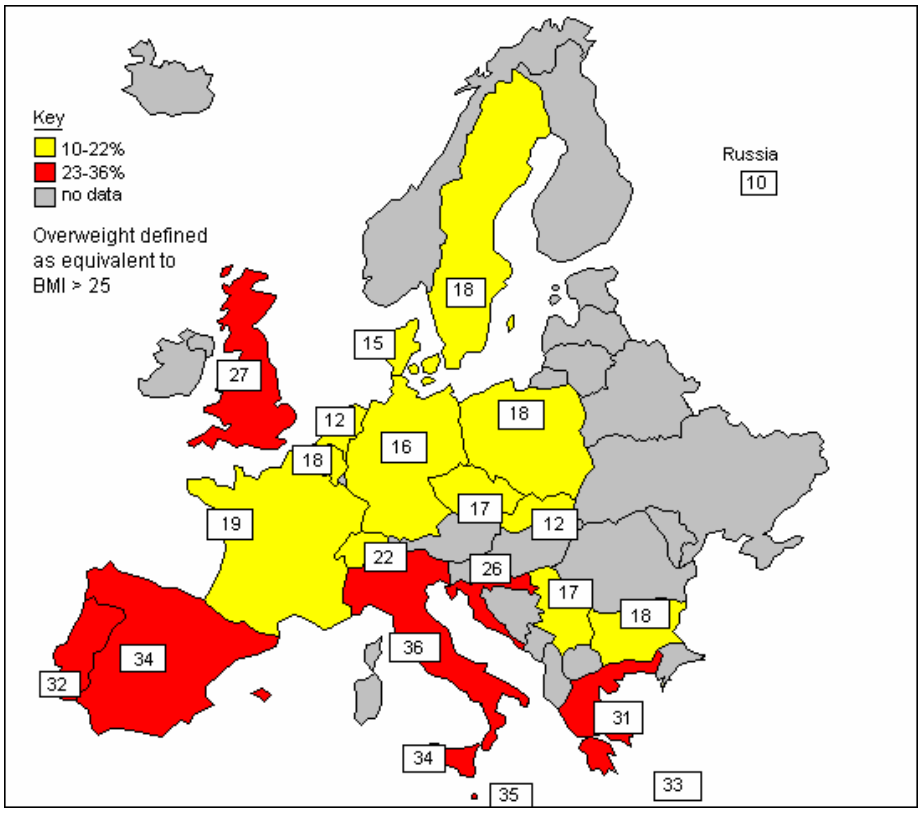


Women



Adapted from Obesity in Europe 2[4].

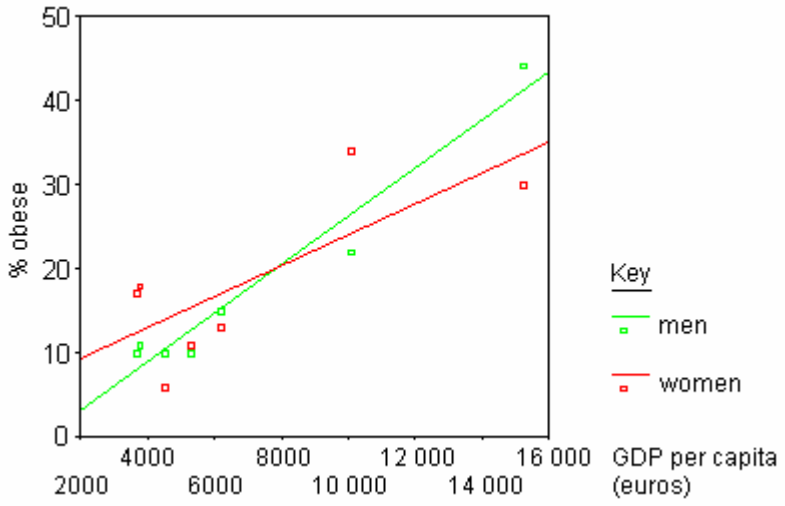
Figure 2: Prevalence of overweight in children aged 7-11 years across Europe



Adapted from Lobstein (2004)[3].

Figure 2 shows the prevalence of childhood overweight across Europe. This is an updated version[3] of data derived from Lobstein and Frelut's (2003)[5] meta-analysis of 21 studies of childhood overweight. This indicates that the prevalence of child overweight is higher in southern and western than central and eastern Europe. The authors attribute the low prevalence in eastern and central regions to the economic recession these regions experienced[5]. Figure 3 lends support to this hypothesis, showing that GDP per capita is positively and significantly associated with adult obesity in eastern Europe (men: $r=0.975$, $p<0.001$; women: $r=0.764$, $p<0.05$). Reasons for the north-south gradient remain unclear, especially as the Mediterranean diet is supposedly more healthy, contributing to lower overall mortality in the countries of southern than northern Europe[7].

Figure 3: Association between GDP per capita and adult obesity prevalence in eastern Europe



Data from Arnaudova (2004)[6].

Caveats

Patterns of obesity and overweight are complex. Sweeping statements about nations' prevalence conceal important intricacies of the problem. For example, Romania's females are amongst the most overweight in Europe, whereas those in Bulgaria (which has a border with Romania) are amongst the least[4]. Additionally, the health risk that any given degree of overweight confers will not necessarily be the same across Europe.

Beware of prevalence comparisons across time and space

Comparisons and trends are difficult to identify for the following reasons[2,8]:

a. Different definitions of overweight and obesity are used. The most common estimate of body fat is based on Body Mass Index (BMI) because it is obtained by simply dividing weight (kg) by the square of height (m^2), weight and height being common anthropometric measures. Sometimes waist-hip ratio is used, as it is thought to be more closely associated with morbidity and mortality.

b. Studies report statistics for different age groups, defining childhood/adulthood differently, making comparison of figures difficult.

c. Figures are not always age standardised, and prevalence will be affected by the age structure of the sample and population.

d. Some countries have more up-to-date data than others, which will confound comparisons especially in light of the widespread upward trend in prevalence.

e. The quality of data is very variable – height and weight are sometimes self-reported rather than measured, and samples are not always large enough or representative of the country's population.

Difficulties specific to childhood data

a. Definition of obesity is more difficult in children. Some studies use Cole et al's[9] cut-offs which represent adult BMIs of 25 and 30 extrapolated back in age and are based on international data; others use national reference charts or those of the USA (National Centre for Health Statistics, NCHS), defining obesity as the 95th or 97th percentile. Health Survey for England data reveal startling disparities between estimates using different definitions (Table 1).

Table 1: Estimates of % child (2-15 years) obesity and overweight – data from Health Survey for England (2002)[10]

	Obese		Overweight and obese	
	Boys	Girls	Boys	Girls
International classification	5.5	7.2	21.8	27.5
National BMI centiles*	16.0	15.9	30.3	30.7

* Cutoffs are the 85th percentile for overweight and the 95th percentile for obesity.

The IOTF, the main source of international data, uses and recommends the international cut-offs.

b. The relationship between BMI and adiposity is confounded by differences in the rate/timing of adiposity rebound, growth and sexual maturation.

Note that Lobstein and Frelut's study[5] avoids some of these problems. Criteria for the inclusion of studies were that they:

- Defined overweight by Cole et al's international BMI cutoffs[9];
- Used measured (not self-reported) height and weight;
- Used a representative sample; and
- Had been peer-reviewed.

However, the data represent a comparison across a time span of 9 years and are still subject to criticisms of BMI and international cut-offs. Furthermore, many other estimates are based on much less stringent criteria.

Data from different sources give very different indications

The Food and Agricultural Organization of the United Nations (FAO) data on food availability suggest that eating patterns in southern Europe are generally healthier than those in the north, as they indicate the consumption of less sugar and saturated fat and more fruit, vegetables and cereals[11]. In contrast, BMI data suggest that childhood overweight is especially common in southern and eastern European countries[3,5].

Most data available on European obesity prevalence are produced by the IOTF. This organisation is eager to present obesity as a major public health problem. Should we be sceptical about the startling figures it produces? We think not, because comparison of IOTF figures with the Health Survey for England reveal that estimates for England are very similar (Table 2).

Table 2: Overweight/obesity estimates (%) from different sources

		Male	Female
Adult obesity	IOTF 2002[1] (18+ years, England)[a]	20	23
	HSE 2002[12] (16+ year olds, England)[a]	24	21
Child overweight	IOTF 2004[3] (7-11 year olds, UK)[b]	27	
	HSE 2002[10] (6-10 year olds, England)[b]	22	28

[a] Obesity defined as BMI 30.0+

[b] International cutoffs used

Therefore IOTF figures do not consistently overestimate obesity or overweight prevalence compared to other data. However, as with many international datasets, variations between countries in the way in which data was collected make direct international comparisons difficult.

Case Studies

France

The so-called "French paradox" has received much attention from researchers and the media. It refers to the fact that although the French have a diet richer in saturated fat than even the Americans, the French mortality rate from heart disease is substantially lower[13,14].

Most research has been devoted to the postulated protective effect of wine-drinking, which if course is common in France. However, this does not explain why France's obesity prevalence is the lowest in Europe, at about 10%, compared to the UK's 22% and the US's 33%.

Therefore another popular explanation concerns the food-related attitudes and practices of the French. The media have seized on the idea that food is very important to the French in terms of culture and enjoyment, and on the relative unimportance of dieting in France. In practical terms this means that eating processed food and snacks is probably less common in France. In support of the quality-not-quantity idea, one study[13] found that portion sizes are smaller (in terms of weight) in restaurants, supermarkets and cookbooks in France than the US, and that the French eat more slowly in McDonalds restaurants than Americans, presumably allowing satiety to be felt to act as a cue to stop eating. The French therefore probably eat fewer calories overall but, clearly, more research is needed.

One author[14] suggested that the French are more active in everyday life, but hypotheses relating to physical activity have received little attention and remain to be tested.

Obviously the explanation will be complex. Even if the origin of the difference is solely in diet, it is likely to be more complicated than simply daily calorie consumption. Other explanations could relate to the distribution of calorie intake throughout the day, the variety of foods consumed and the ratio of macronutrients in the diet. The number of differences in the lifestyles of people living in two countries, and the ways in which they could interact, will be vast, and research has gone only a little way so far to investigate this in relation to France. Additionally, there is a danger of automatically attributing the paradox to *any* diet- or physical activity related differences between France and the UK or US – we must be careful to actually investigate the extent to which differences we have identified actually account for the differences in CHD mortality and obesity rates. The more complex the origin of the paradox, the more difficult it will be to implement the secret of France's success in the UK.

Finland

Introduction

In response to a worryingly high mortality rate from coronary heart disease in the early 1970s, the Finnish government, in collaboration with the World Health Organisation, set up an intervention at the community level in North Karelia, which aimed to improve the population's blood pressure and cholesterol levels by a) reducing saturated fat intake, b) increasing fruit and vegetable consumption and c) reducing salt intake. Following successful results, the measures were implemented nationwide.

Strategies

In Finland there exists a wide variety of measures that aim to promote a healthy lifestyle[15-18].

The media
Media campaigns aim to raise awareness about healthy alternatives to products high in saturated fat (such as reduced fat cheese, and margarine rather than butter) and to create a market for these.

Schools
Children's weight is monitored by their schools. Sugary drinks are banned from schools. Nutrition and skills education, and exercise, are thoroughly incorporated into the school curriculum.

Mass catering
All school children receive a free meal a day, and university students' meals are subsidised. These, along with meals served in work places, institutions and hospitals, are subject to guidelines regarding content. The guidelines are also used in the training of personnel in social and health care services. Although the guidelines have only advisory status, they are quite well adhered to in both the public and private sectors. The average Finn eats 2.6 meals per week provided by these mass catering services, so interventions here have the potential to be effective.

Health care sector
Nutrition education drives are commissioned by the Centre for Health Promotion from non-governmental health promotion associations for implementation in health centres, hospitals etc. Finnish parents receive information about children's nutrition through maternal health services.

Legislation and other government policies
Some legislation has been used, e.g. to limit, and introduce compulsory labelling of, salt content for some foods. Additionally, milk subsidies are now paid on the basis of protein rather than fat content. Other subsidies to help farmers move away from dairy farming and into growing berries and unsaturated fats (e.g. Canola oil seed rape).

Results

The intervention has been evaluated mainly in terms of a) trends in the consumption of full-fat dairy products and saturated fat, which have been favourable, and b) changes in the population's cholesterol levels, blood pressure and mortality from heart disease, which have all decreased[15-18].

Independent data also suggest favourable trends in obesity rates. The rise in obesity between 1980 and 1991 was much smaller than in the UK (1-4 percentage points, compared to the UK's 7)[19]. The average annual increase in prevalence between 1980 and 1998 was only 0.18% in Finland (compared to the UK's 0.74%)[19]. Additionally, IOTF figures show that Finland has almost the lowest prevalence of childhood overweight/obesity in Europe, at just 13%, (compared to the UK's 27%)[1]. However, obesity levels are still rising in Finland, despite quite radical improvements in diet, possibly because physical activity levels have continued to fall significantly.

What can we learn from the Finnish approach?

- The Finns are very proud of the fact that responsibility for programmes is split between many different governmental and non-governmental sectors. This approach has been criticised, however, as there are sometimes conflicts of interest pulling policy away from what is best for public health. Perhaps the cause would benefit from a single body to oversee policy planning and implementation, but we can still learn from the thorough communication and co-operation between Finnish organisations responsible for its nation's diet. The approach has allowed broad-ranged action to create an intervention which pervaded many areas of citizens' lives. This reflects the recognition that a nation's eating habits are thoroughly ingrained in the culture and economy of its country.
- Another interesting feature of the Finnish government's strategy is the "softly-softly" approach it has taken with the domestic food industry. Although this has been a source of criticism, it has demonstrated that co-operation can be created not by fiscal measures but by creating a demand for healthful foods via education campaigns.
- Another point of discussion has been the fact that the intervention was heavily based on theory, not only both epidemiological and medical but also social and behavioural. This was reflected in the high level of interest and participation in the various schemes.
- Obesity is one of Finland's principal public health problems – the Finns recognised this early and they acted. We should follow this example and avoid complacency.

Why should we be careful in generalising from the Finnish approach?

It should be noted that conclusions are not always generalisable across different countries and cultures. That is, something that works well in one country will not necessarily work in another. Finland is a small country in terms of population, and many of its citizens are relatively poor and live in rural settings. It is therefore quite different to the UK. Also, it has been said that the Finns have more faith in their government, perhaps increasing the effectiveness of government-coordinated interventions and government-delivered health messages. Although lessons may be learned from experiences Finland has had, these caveats should be borne in mind.

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Acknowledgements

Many thanks to Dr Tim Lobstein for providing data. We are also grateful for the advice of Professor Carolyn Summerbell and colleagues in the Food and Nutrition Group at the University of Teesside and the North East PHO.

Further Information

European Public Health Alliance	http://www.epha.org/a/673
International Obesity Task Force	http://www.iotf.org/
World Health Organization	http://www.who.dk/informationsources
European Public Health Association	http://www.eupha.org/
Association of Public Health Observatories	http://www.apho.org.uk
University of Teesside Food & Nutrition Group	http://www.tees.ac.uk/Schools/SOH/pgi/PubHealth.cfm
UK Faculty of Public Health	http://www.fphm.org.uk/
European Union – Public Health Programme	http://europa.eu.int/pol/health/index_en.htm
Health Development Agency	http://www.hda-online.org.uk/

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